

CLAIMS

1. A base station (100) devised for indoor use in a WCDMA network,  
comprising a support unit (401) including a power supply unit (303), said  
5 support unit (401) being adapted to be attached to a support structure, and a  
complete base station unit (402) mechanically supported by said support unit.
2. The base station (100) according to claim 1 further **characterised in that**  
said complete base station unit (402) is designed as a separate docking unit  
10 locked in said support unit (401) by cooperating snap locking means (602,  
703) arranged in said support unit (401) and base station unit (402), allowing  
an easy installation/removal of said complete base station unit (402) in/from  
said support unit (401).
- 15 3. The base station (100) according to claim 1 or 2 further **characterised in that**  
said power supply unit (303) housed in said support unit (401) comprises an  
AC/DC converter feeding said complete base station unit (402) with a DC-  
voltage.
- 20 4. The base station (100) according to any of claims 1 to 3 further  
**characterised in that** said base station unit (402) has a sandwich structure  
comprising a rigid metal back plate (1201), a rigid metal front plate (1208),  
and a main circuit board (1206) attached intermediate said back plate and  
front plate (1208).  
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5. The base station (100) according to claim 4 wherein said rigid metal back  
plate (1201) comprises cooling flanges (1601).
6. The base station (100) according to claim 5 wherein said back plate's (1201)  
30 cooling flanges (1601) are arranged on the side facing away from said circuit  
board (1206) whereby said main circuit board (1206) is cooled by means of

self-convection through said back plate (1201).

- 5 7. The base station (100) according to any of claims 4-6 wherein all circuits of a control processing block, a base band processing block and an RF block are arranged on said main circuit board (1206).
- 10 8. The base station (100) according to any of claims 7 further **characterised in that** said main circuit board (1206) comprises border portions (1207) dividing the main circuit board in sections with separate circuits for said blocks, and where said front plate comprises inner walls (1501) with end portions engaging said border portions (1207) for shielding said separate circuits from each other.
- 15 9. The base station as recited in any of claims 4-8 further **characterised in that** it comprises a transmission interface block realised in form of a separate circuit board (1210), which is attachable to the main circuit board (1206) by means of a contact interface, thereby allowing an easy substitution of said circuit board (1210).
- 20 10. The base station (100) according to any of the preceding claims **characterised in that** said support unit (401) comprises support members (601) and said base station unit (402) comprises cooperating hanger members (701) which are devised to connect to said support members (1601) in a pivoting engagement, and wherein said snap locking means (602, 703) are included in said support (401) unit and in said base station unit (402), which are devised to engage with each other by pivoting said base station unit.
- 25 11. The base station (100) according to claim 10 **characterised in that** said snap locking means (602, 703) are formed by an inwardly projecting knob on a side wall of the support unit (401), and a cooperating recess in the base
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station unit (402), wherein engagement of the knob and the recess locks said base station unit (402) from moving vertically upwards and horizontally outwards from the support unit (401).

- 5      12. The base station (100) according to claim 10 **characterised in** that said snap locking means are realised by means of spring-loaded engaging means arranged on a side wall of said support unit (401) and a cooperating recess in a side wall of said base station unit (402).
- 10      13. The base station (100) according to any of the preceding claims **characterised in** that said base station (100) comprises at least one interface for connecting an external alarm equipment with the control processing circuit (1404) of said base station (100), thereby allowing the establishment of a communication channel between said external alarm equipment and a
- 15      central alarm station.
14. The base station (100) according to any of the preceding claims **characterised in** that said base station (100) comprises a handle (702).
- 20      15. The base station (100) according to claim 14 **characterised in** that said handle (702) is arranged on the lower end of said base station unit (402), when the base station unit (402) is installed in said support unit (401), and that said handle (702) further comprises a cable race groove.
- 25      16. The base station (100) according to claim 15 **characterised in** that at least one cable contact is positioned at the lower end of said base station, when the base station unit (402) is installed in said support unit (401), under said handle and tilted about 45 degrees.
- 30      17. The base station (100) according to any of the preceding claims **characterised in** that it comprises an internal antenna (403) covered by a

front cover (404) of an electromagnetically transparent material.

18. Base station (100) devised for indoor use in a WCDMA network, comprising a base station unit (402) having an interface (1405) for connection to a power supply (303), a radio network controller, RNC, and to an antenna (403), said  
5 base station unit having a sandwich structure comprising a rigid metal back plate (1201), a rigid metal front plate (1208), and a main circuit board (1206) attached intermediate said back plate (1201) and front plate (1208),
- 10 19. The base station as recited in claim 18, wherein said rigid metal back plate (1201) comprises cooling flanges (1601).
20. The base station as recited in claim 19, wherein said cooling flanges (1601) are arranged on a side facing away from said circuit board (1206), and  
15 wherein said main circuit board (1206) is cooled by means of self-convection of said back plate.
21. The base station (100) according to any of claims 18-20 wherein all circuits of a control processing block (1404), a base band processing block (1402)  
20 and an RF block (1401) are arranged on said main circuit board (1206).
22. The base station as recited in any of claims 21 further **characterised in that** said main circuit board (1206) comprises border portions (1207) dividing the main circuit board in sections with separate circuits for said blocks, and  
25 where said front plate (1208) comprises inner walls (1501) with end portions engaging said border portions (1207) for shielding said separate circuits from each other.
23. The base station according to any of claims 18-22, wherein said front plate (1208) comprises a mechanical interface for attaching an internal antenna (403), and wherein said antenna is covered by a front cover (404) of an  
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electromagnetically transparent material.

24. The base station as recited in any of claims 21-22 further **characterised in that** the control processing block (1404) and Radio Frequency block (1401) of said main circuit board (1206) are arranged in separate shielded compartments formed between said front plate (1208) and back plate (1201), whereby said control processing block (1404) and Radio Frequency block (1401) are electromagnetically shielded from other electric circuits of the base station (100).
25. The base station as recited in any of claims 20-24 further **characterised in that** a transmission interface block is realised on a separate circuit board (1210), which is attachable to the main circuit board (1206) by means of a contact interface, thereby allowing the easy substitution of said circuit board (1210).
26. The base station according to claim 25 further **characterised in that** said circuit board (1210), a base band processing block (1402) and a DC/DC block (1403) of said circuit board (1206), are arranged in separate shielded compartments formed between said front plate (1208) and back plate (1201), and whereby said circuit board (1210), base band processing block (1402) and DC/DC block (1403) are electromagnetically shielded from other electric circuits of the base station (100)..
27. A cellular radio network, including one or more macro base stations, **characterised in that** said network further comprises a base station according to any of claims 1-26.
28. Method for assisting the installation of a base station (100) for indoor use in a WCDMA network, which base station comprises a support unit (401) including a power supply unit (303), and a complete base station unit (402)

mechanically supported by said support unit (401), comprising the steps of:

- mechanically attaching said support unit (401) to a support structure;
- mechanically attaching said base station unit (402) to the support unit (401);

- 5       - connecting the base station unit to a radio network controller, RNC, of said network, to an antenna (403), and to said power supply unit (303); and
- downloading application software and office data from a management tool to said base station unit, allowing the establishment of a communication channel between said base station unit (402) and said RNC .

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29. The method according to claim 28 wherein said step of mechanically attaching said base station unit (402) to the support unit (401) comprises the following step:

- 15       - docking said base station unit (402) by engaging cooperating snap locking means (602, 703) arranged in said support unit (401) and said base station unit (402).

30. The method according to claim 28 wherein said step of mechanically attaching said base station unit (402) to the support unit (401) comprises the following steps:

- 20       - engaging hanger members (701) of said base station unit (402) with cooperating support members (601) of said support unit (401), and,
- pivoting said base station unit (402) into engagement of cooperating snap locking means (602, 703) arranged in said support unit (401) and said base station unit (402).
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31. The method according to any of claims 28-30 further comprising the steps of:

- 30       - connecting an external alarm equipment to said base station unit (402),
- downloading specific software for said external alarm equipment to the control block unit (1404) of said base station unit (402), allowing the

establishment of a communication channel between said alarm equipment and a central alarm station.

32. The method as recited in claim 28, comprising the step of :

- 5       - connecting said management tool directly to said base station unit by means of a Local Management Tool, for direct downloading of said application software and office data to the base station unit.

33. The method as recited in claim 28, comprising the step of :

- 10       - connecting said management tool to a central radio network controller, RNC, of said network, for downloading of said application software and office data to the base station through said network.

34. Method for assembly of a base station unit as recited in any of claims 18-26, comprising the steps of;

- 15       - placing the back plate (1201) on an assembly support;  
      - placing the circuit board (1206) on the back plate (1201);  
      - attaching the circuit board (1206) to the back plate (1201);  
      - placing the front plate (1208) on the circuit board (1206); and  
20       - attaching the front plate (1208) to the back plate (1206).